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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,745	11/14/2001	Gerald Chip	GT-5400	8255

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EXAMINER	
BOYD, JENNIFER A	

ART UNIT	PAPER NUMBER
1771	

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/993,745	CHIP ET AL.	
	Examiner	Art Unit	
	Jennifer A Boyd	1771	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) *11-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1 page*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Applicant's Amendments and Accompanying Remarks, filed January 23, 2004, have been entered and have been carefully considered. Claims 11 – 15 are withdrawn and claims 1 – 15 are pending. In view of Applicant's Arguments regarding that the short-stop agent does materially effect the end product, the Examiner withdraws the 35 U.S.C. 103(a) rejection of claims 1 - 10 as being unpatentable over O'Connor as set forth in paragraphs 2 – 3 of the previous Office Action dated September 10, 2003. Despite these advances, the invention as currently claimed is not found to be patentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al. (US 4,539,254) in view of Wertz et al. (US 2002/0117279).

O'Connor is directed to a reinforcing composite for roofing membranes and process for making such composites (Title).

As to claims 1 and 6, O'Connor teaches a composite comprising at least one layer of fiberglass, at least one layer of polyester and at least one third layer which is fiberglass or polyester (column 1, lines 59 – 64). O'Connor teaches that the layers may be bonded together by a thermoplastic adhesive under pressure to form a composite (column 2, lines 10 – 14).

O'Connor teaches that the thermoplastic adhesive used to bind the laminated composite together can be a water-based adhesive capable of cross-linking (implying the need of a cross-linking material) to give a thermoset structure, may also be made by adding thermosetting resins to a thermoplastic resin (for example, by adding a urea-formaldehyde resin to a styrene-butadiene latex) (column 3, lines 55 – 68).

O'Connor fails to disclose that the urea-formaldehyde resin is prepared by adding a short-stop agent to the urea-formaldehyde resin reaction system.

Wertz is directed to an urea-formaldehyde resin binder containing styrene acrylates and acrylic copolymers (Title) for use in fiber mats for roofing shingles or siding (page 1, [0002]). Wertz teaches that amine modification can be used when reacting the urea and formaldehyde components (page 2, [0023]). Wertz further teaches that various reactants may be used as resin modifiers such as ammonia, melamine and various amines (page 3, [0026]). Wertz notes that the addition of those modifiers promote hydrolysis resistance, polymer flexibility and lower formaldehyde emissions in the cured resin (page 3, [0026]). The Examiner equates the modifier to Applicant's "short-stop agent".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the amine modifier or "short-stop agent" of Wertz to during the processing of O'Connor's urea-formaldehyde motivated by the desire to create a resin binder with high flexibility, low emissions and high hydrolysis resistance.

As to claims 1 – 10, O'Connor in view of Wertz discloses the claimed invention except for that the binder comprises at least 10 – 90 wt% styrene-butadiene and a corresponding amount of 90 – 10 wt% of urea-formaldehyde resin as required by claims 1 and 6, about 70 wt% styrene-

butadiene and about 30 wt% of urea-formaldehyde resin as required by claims 2 and 7, at least 10 – 90 wt% styrene and 90 – 10 wt% butadiene as required by claims 3 and 8, about 30 - 70 wt% styrene and about 70 – 30 wt% of styrene as required by claims 4 and 9 and about 40 wt% styrene and about 60 wt% of styrene as required by claims 5 and 10. It should be noted that the amount of styrene-butadiene and urea-formaldehyde resin present in the binder and the proportion of butadiene to styrene are result effective variables. For example, as the styrene content increases, the binder becomes stiffer and is more impact resistant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a binder with 10 – 90 wt% styrene-butadiene and a corresponding amount of 90 – 10 wt% of urea-formaldehyde resin as required by claims 1 and 6, about 70 wt% styrene-butadiene and about 30 wt% of urea-formaldehyde resin as required by claims 2 and 7, at least 10 – 90 wt% styrene and 90 – 10 wt% butadiene as required by claims 3 and 8, about 30 - 70 wt% styrene and about 70 – 30 wt% of styrene as required by claims 4 and 9 and about 40 wt% styrene and about 60 wt% of styrene as required by claims 5 and 10 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the ratio of styrene-butadiene and urea-formaldehyde and the ratio of styrene to butadiene to create a binder with proper tear strength and impact strength.

Response to Arguments

4. Applicant's arguments filed January 23, 2004 have been fully considered but they are not persuasive.

5. In response to Applicant's arguments that O'Connor does not disclose or suggest a single layer of a polyester mat, the Examiner respectfully argues the contrary. As detailed in the rejection above, O'Connor teaches a composite bonded with a resin comprising at least one layer of fiberglass, at least one layer of polyester and at least one third layer which is fiberglass or polyester (column 1, lines 59 – 64). Claim 1 requires that a single layer of polyester mat is present. Also, claim 1 uses the language "comprising". It should be noted that the transitional term "comprising", which is synonymous with "including", "containing", or "characterized by" is inclusive and open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997). Therefore, even though the Applicant claims ***a single layer*** of a polyester mat, the transitional language does not preclude the inclusion of any other layer including an additional polyester layer. If the Applicant requires that no other layer can be present, the Examiner suggests the Applicant amend the claim language to "consisting of".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer Boyd
April 14, 2004

Ula C. Ruddock
Primary Examiner
Tech Center 1700